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HELMINTHOLOGICAL ABSTRACTS

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PRINCIPAL CONTENTS.

GENERAL SUBJECTS.

PAPERS ON SOIL AND FREE LIVING NEMATODES.

PAPERS ON PLANT PARASITIC NEMATODES.

PAPERS ON HELMINTH PARASITES IN ANIMALS.

PAPERS DEALING WITH GEOGRAPHICAL DISTRIBUTION.

PAPERS DEALING WITH HOST DISTRIBUTION.

HELMINTHOLOGICAL ABSTRACTS

Vol. II, No. 1.

1—American Journal of Hygiene.

a. WINFIELD, G. F.—" Quantitative experimental studies on the rat nematode *Heterakis spumosa*, Schneider, 1866." XVII (1), 168-228. [1933.]

b. PORTER, D. A. & ACKERT, J. E.—" The effect of blood loss upon the resistance of chickens to variable degrees of parasitism." XVII (1), 252-261. [1933.]

c. DAVID, N. A. & JOHNSTONE, H. G.—" Heptylresorcinol in the treatment of hookworm infection." XVII (1), 287-296. [1933.]

(a) Winfield records the results of certain quantitative experiments which were carried out on the rat nematode *Heterakis spumosa* and includes the description of several ingenious and useful quantitative methods which he has devised. He has worked out the complete life history and has demonstrated the development of a natural age immunity and of an acquired resistance to reinfestation produced by worms which are present at the time of the second infestation. He shows this resistance to remain even after the discharge of all worms from the body. He was able to remove the worms successfully by means of carbon tetrachloride by mouth and intracaecally. White mice were also infested with the worm. He describes a useful method of administering known numbers of infective ova to rats in which Avertin is used as an anaesthetic and also a satisfactory modification of the dilution method of counting nematode ova in rat faeces. P.A.C.

(b) Porter and Ackert were able to prove that repeated loss of blood may lower the resistance of chickens to *Ascaridia lineata*.

The criteria adopted for measuring the resistance of the chick to the parasite were the number of nematodes present and the lengths of the worms. More worms and longer worms were usually obtained from groups of birds that had been repeatedly bled during the course of the infestation, though both experimental and control groups had originally been fed equal numbers of infective ova. Several comparisons did not, however, result in differences which were statistically sound. P.A.C.

(c) David and Johnstone have evidence that heptylresorcinol is less effective than hexylresorcinol in the treatment of hookworm disease.

In olive oil solutions the drug was completely ineffective and only limited success was obtained when it was used in the crystalline form in gelatine- or salol- coated capsules. One case of Ascariasis was cured: a case of Trichuriasis did not respond to treatment. P.A.C.

2—American Journal of Tropical Medicine.

a. FAUST, E. C. & KAGY, E. S.—"Experimental studies on human and primate species of Strongyloides. I. The variability and instability of types." XIII (1), 47-65. [1933.]

(a) Faust and Kagy present evidence of the capacities of chimpanzee, capuchin and human strains of Strongyloides to establish themselves in man, the macaque and the dog. Repeated passage of pure strains of human origin through dogs invariably produced alterations and developed the direct type of development. The chimpanzee strain passed through dogs failed, however, to change from indirect to direct type but in man its stability was reduced. Various changes in virulence were noted in the different strains. R.T.L.

3—Annales de Parasitologie Humaine et Comparée.

a. STREIGNART.—"Un cas de ladrerie révélé par les Rayons X." XI (1), 17-19. [1933.]
b. FRÓES, H. P.—"Microfilaires vivantes dans le liquide séro-fibrineux d'un épanchement péritonéal chez un ancien paludéen parasité par *Wuchereria bancrofti*." XI (1), 20-21. [1933.]
c. ORLOFF, I. W.—"Sur la reconstruction de la systématique du genre *Ostertagia* Ransom 1907." XI (2), 96-114. [1933.]

(a) Streignart claims to have demonstrated calcified *Cysticercus cellulosae* in a peasant's leg which was X-rayed for fracture. The peasant declined to allow a confirmatory biopsy. B.G.P.

(b) Fróes describes a case of microfilariae of *Wuchereria bancrofti* in ascitic fluid and in the blood. The patient also had strongyloides and malaria. [This appears to be the same case reported by the same author elsewhere; see Helm. Abs., Vol. I, No. 193*a*, and Vol. II, No. 25*a*.] B.G.P.

(c) In a revision of the genus *Ostertagia* Ransom, 1907, Orloff recognizes five subgenera, viz., *O.* (*Ostertagia*) t. sp. *O. ostertagi* (Stiles, 1892); *O.* (*Grosspiculagia*), t. sp. *O. occidentalis* Ransom, 1907; *O.* (*Spiculopteragia*), t. sp. *O. spiculoptera* Guschanskaya, 1931; *O.* (*Marshallagia*), t. sp., *O. marshalli* Ransom 1907; and *O.* (*Pseudostertagia*) t. sp. *O. bullosa* Ransom & Hall 1912.
Ostertagia mentulata Railliet & Henry, 1909, has been recognized as type of *Camelostrongylus* n. g. and *O. callis* (Travassos, 1914), as type of *Travassostrongylus* n. g. R.T.L.

4—Archiv für Schiffs- und Tropen-Hygiene.

a. WITENBERG, G.—"Zur Kenntnis der Verbreitung von Echinokokkus und Trichinen in Palästina." XXXVII (1), 37-41. [1933.]

(a) In Jerusalem 20 per cent. of the stray dogs are naturally infected with *Echinococcus granulosus* but the cats are free from infection.

Five attempts to infect cats experimentally gave negative results. The jackal was found to be naturally infected in Palestine and one case harboured over 100 adult worms. Young jackals were readily infected experimentally. Twelve Palestinian foxes *Vulpes nilotica* were examined but proved negative. In spite of the widespread infection of dogs the occurrence of human cases of Hydatid is rare in Palestine, whereas in Syria it is relatively common. 80 per

cent. of cattle imported from Cyprus are infected while in Palestinian cattle the infection is only about 12 per cent. The Cypriot cattle contain many acephalocysts.

Trichiniasis in man was unknown in Palestine until Wortabet recorded an outbreak among Bedouins in the region of Lake Huleh which was traced to wild boar flesh. An Ichneumon (*Herpestes ichneumon*) from the desert near Beersheba was found naturally infected by the author and the life cycle was followed experimentally in a dog and in white rats subsequently. The occurrence in wild animals explains the recent finding of trichiniasis in a pig in Bethlehem by Dr. Gruberg. R.T.L.

5—Australian Veterinary Journal.

a. KAUZAL, G.—" Observations on the bionomics of *Dictyocaulus filaria* with a note on the clinical manifestations in artficial infections in sheep." IX (1), 20-26. [1933.]

b. OXER, D. T.—" Some observations on the toxicity, for sheep, of carbon tetrachloride." IX (1), 30-32. [1933.]

c. GORDON, H. McL.—" Some ovine trichostrongylids reported from Australia for the first time, with a description of *Trichostrongylus longispicularis* sp. nov. from a sheep." IX (1), 34-37. [1933.]

(a) Kauzal has studied the development of *Dictyocaulus filaria* both in the free-living and in the infective stages and has made some interesting clinical observations on experimental lungworm disease of sheep. The larvae migrate to the lungs *via* the lymph stream.

Third stage larvae may be found in the mesenteric lymph glands from 24 hours up to 5 days after infection and larvae undergoing the third ecdysis in the lung after 5 days. Fourth stage larvae were found in the bronchi after 8 days and young adults after 18 days. The life-cycle may be completed in a minimum period of 32 days but more usually it will occupy 5 to 6 weeks.

The author, in his clinical observations on experimental lambs, found that death seldom occurred even when up to 10,000 larvae of *D. filaria* were administered and that the animals threw off their infection completely in 12 to 14 weeks. D.O.M.

(b) Oxer has studied the effect of treatment with carbon tetrachloride on three flocks of sheep kept under different conditions.

The author considers that such factors as age, mineral deficiency, presence of concentrates in the ration, exercise and pregnancy may have contributed to the ill effects produced. In view of the loss of appetite which might follow a regular vermicidal treatment, Oxer questions its value for sheep kept on pasture alone. D.O.M.

(c) Gordon records the finding of the following species in Australian sheep for the first time :—*Cooperia punctata*, *C. McMasteri*, *Trichostrongylus probolurus*, and a new species *Trichostrongylus longispicularis*.

The new species differs from other members of the genus in the length and form of the spicules and in the asymmetry of the dorsal ray. A note is added on the distribution of Trichostrongylus species in Australia. R.T.L.

6—Berliner Tierärztliche Wochenschrift.

a. LAUDIEN, L.—" Einige besondere Fälle aus der Lebensmittelüberwachung." XLIX (5), 74-77. [1933.]
b. REINHARDT, R.—" Arekolin als Antitaenikum." XLIX (9), 129. [1933.]

(a) Laudien, in an account of some special instances of food inspection, mentions a larval ascarid frequently to be seen in fillets of cod ; it is probably a stage of *Ascaris decipiens* adult in marine mammals. Such fillets should be condemned, for although the worm is harmless to man its presence is nauseating. An adult ascarid, *Contracaecum auctum*, has also been found entangled in the copious mucus on the skin of *Zoarces viviparus*, and in the intestine : infected fish are not to be condemned. *Bothriocephalus punctatus* occurs commonly in turbot, bunches of the worms often hanging from the anus ; it is harmless to man. B.G.P.

(b) Reinhardt reports that he has had very successful results in treating tapeworm infestations with Arecolin hydrobromide.

He has treated over 1,000 dogs, using 2 mg. per kilo of body weight in watery solution *per os*. He has never observed any toxic symptoms such as have been reported by Schoemann. There is a wide margin of safety between the clinical and lethal doses. P.A.C.

7—British Medical Journal.

a. ADAM, J.—" Hookworm infection and asthma." No. 3759, p. 121. [1933.]

(a) On account of their pathological and therapeutic importance Dr. Adam draws attention to the points common to hookworm infection and to asthma. These are lowered alkali reserve, Hypochlorhydria, haemorrhagic conditions and eosinophilia. R.T.L.

8—Bulletin du Musée Royal d'Histoire Naturelle de Belgique.

a. SCHUURMANS STEKHOVEN (Jr.), J. H. & CONINCK, L. de.—"Diagnoses of new Belgian marine nemas." IX (4). [Reprint 15 pp.] [1933.]

(a) Schuurmans Stekhoven and Coninck give detailed morphological descriptions of ten new species of nematodes collected from sand and decaying roots of *Statice limonium* on the Belgian coast.

The following new species are dealt with : *Bathylaimus macramphis*, *B. paralongisetosus*, *B. stenolaimus*, *Microlaimus acuticaudatus*, *M. robustidens*, *Dermatolaimus elegans*, *Leptolaimus setiger*, *Odonthophora longicaudata*, *Steineria mirabilis*, *Theristus longisetosus*. These are described in detail, with numerous figures, Cobb's formula being also given. M.J.T.

9—Bulletins de la Société de Pathologie Exotique.

a. CHATRON, M.—" Un nouveau cas de distomatose humaine à *Fasciola hepatica*." XXVI (1), 24-25. [1933.]
b. QUÉRANGAL DES ESSARTS, J.—" Amibiase et parasitisme intestinaux à Brest." XXVI (2), 192-202. [1933.]

c. BAUVALLET, H.—" A propos de la dracunculose chez les noirs d'Afrique." XXVI (3), 444-446. [1933.]
d. MORARD.—" Au sujet de la draconculose à Bilma." XXVI (3), 535-536. [1933.]

(a) Chatron presents a case of hepatic congestion and chronic appendicitis in which eggs of *Fasciola hepatica* were found in the faeces. To discount a possible alimentary origin of the eggs the patient was given a meat-free diet for a week, but the eggs were still present. B.G.P.

(b) In a note dealing chiefly with protozoal infections Quérangal des Essarts records the presence of *Trichocephalus* in 33 per cent., *Ascaris* in 22 per cent. and *Taenia saginata* in 1 per cent. of 200 adults in Brest. R.T.L.

(c) In Bauvallet's experience the chemotherapy of Dracontiasis is usually unsatisfactory. About 7 per cent. of the troops in the garrison of Fréjus were attacked and invalided. The length of treatment averaged in 27 cases about 23 days and ranged in individual cases from 73 to 11 days. R.T.L.

(d) Dracontiasis is a very frequent infection on the French Niger according to Morard and causes a considerable amount of invalidity. Although guineaworm is not endemic at Bilma, 16 cases of Dracontiasis were seen and these were under treatment for a total of 643 days. R.T.L.

10—Canadian Journal of Research.

a. HASTINGS, R. J., BOSHER, J. E. & NEWTON, W.—" The nematode disease of narcissi and crop sequence." VIII (1), 101. [1933.]

(a) Hastings, Bosher and Newton tested wheat, oats, and barley to discover their suitability as crops to follow narcissus bulbs infected with *Tylenchus dipsaci*.

Wheat was found to be less susceptible to infection than either oats or barley although a certain amount of infection did occur. It was found that infection took place less readily under greenhouse conditions than under conditions promoting slower seedling growth. The severity of the infection on barley seedlings rendered this crop as unsuitable as oats for inclusion in a rotation. M.J.T.

11—Clinica Veterinaria.

a. DACHENA, G.—" Su una enzoozia di paralisi dei polli per infestione di *Davenia proglottina*." LVI (2), 95-102. [1933.]

(a) Dachena has investigated a disease in a flock of 250 birds characterized by failure of appetite, diarrhoea and, in the more serious cases, paralysis.

Heterakis was present but coccidia were absent. In some of the more severe cases, *Davainea proglottina* was present in large numbers and he believes this was the cause of the disease. Turpentine and olive oil given as an anthelmintic caused symptoms of poisoning, without removing all the tapeworms. T.W.M.C.

12—Comptes Rendus des Séances de l'Académie des Sciences.

a. GALLIEN, L.—" Transformations histologiques corrélatives du cycle sexuel chez *Polystomum integerrimum* Froelich." CXCVI (6), 426-428. [1933.]

b. DOGNON, A.—" Action de rayons X monochromatiques de longuer d'onde différente sur l'oeuf d'Ascaris." CXCVI (6), 437-438. [1933.]

(a) Gallien has studied the histological changes which occur, in the doutse of a year, in the genital organs of *Polystomum integerrimum*. In autumn and winter a marked development takes place in these organs and after a short egg-laying period which coincides with the end of the host's hibernation, an involution occurs in spring and early summer. D.O.M.

(b) Dognon has continued his work on the action of monochromatic X-rays on eggs of Ascaris [see Helm. Abs. I, No. 117*a*], and now finds that rays of wave-length 3·8-4 Å.V. are more lethal than those of 1·54 Å.V., on the assumption that the sensitive material of the egg is a negligible volume located at the centre, i.e., the nucleus. B.G.P.

13—Comptes Rendus des Séances de la Société de Biologie.

a. ARTIGAS, P. & PACHECO, G.—" *Stichorchis myopotami* n. sp. (Trematoda)." CXII (4), 404-406. [1933.]

b. ARTIGAS, P. & PACHECO, G.—" *Strongyloides myopotami* n. sp. (Nematoda)." CXII (4), 406-407. [1933.]

c. BACIGALUPO, J.—" Superposition géographique de *Fasciola hepatica* L. et de *Limnaea viatrix* d'Orb." CXII (5), 492-493. [1933.]

d. ARTIGAS, P. & PACHECO, G.—" *Longistriata maldonadoi* n. sp. (*Nematoda*) Trichostrongylidé parasite du *Myocastor coipus*." CXII (10), 1004-1006. [1933.]

(a) Artigas and Pacheco have described, from flattened whole mounts and from serial sections, a new amphistome, *Stichorchis myopotami* n. sp. from the caecum of *Myopotamus coipus*. The rounded testes occur in tandem arrangement in front of the ovary; the vitellaria are irregularly scattered both extra- and intra-caecally; there is a well developed genital sucker. A table of measurements is given. B.G.P.

(b) Artigas and Pacheco have also described *Strongyloides myopotami* n. sp., causing inflammatory and destructive changes in the epithelium of the small intestine of *Myopotamus coipus*. The parasitic female measures from 3 to 6 mm. by 0·05 mm., with a tail 66 μ long and the vulva 0·5 mm. from the posterior end. The eggs, which measure 58 μ by 25 μ, give rise to a free-living sexual generation to be described elsewhere. B.G.P.

(c) Bacigalupo has shown that *Limnaea viatrix* is the vector of *Fasciola hepatica* in the Argentine, and that the distribution areas of parasite and vector coincide. The snail, however, is rare and often difficult to find. B.G.P.

(d) Artigas and Pacheco describe *Longistriata maldonadoi*, a new species of Heligmosominae from the small intestine of *Myocastor coipus*. *Heligmosomum polygyrus* has previously been recorded from the same host by Heideger in 1931 but the identification is believed to be erroneous. R.T.L.

14—Estate Magazine.

a. HODSON, W. E. H.—"Eelworms. I. The stem and bulb eelworm, *Anguillulina dipsaci*." XXXIII (3), 198-201. [1933.]

(a) Hodson gives a brief description of the life cycle of *Anguillulina dipsaci*, the symptoms to which it gives rise in oats, clover, potatoes and other crops, and the methods by which it is spread.

The significance of specialized strains in relation to crop rotation is discussed, and the importance of weeds as reservoir hosts is emphasized. Hardening of the host tissues as a result of potash applications and withholding of nitrogenous manures is recommended as a control measure, as the host is thereby rendered less suitable as food for the nematodes. The importance of securing clean seed of susceptible crops is explained with reference to the life cycle of the parasite. M.J.T.

15—Indian Medical Gazette.

a. RAO, S. S.—"The duration of the life of the embryos of *Wuchereria bancrofti* in the human system." LXVIII (1), 3-6. [1933.]
b. CHANDRA, A.—"Jaundice and acute mania following combined carbon tetrachloride and oil of chenopodium treatment for hookworm." LXVIII (3), 150. [1933.]

(a) Sundar Rao concludes that the life of the filaria embryos in the peripheral blood is about 10 weeks and this conclusion is based on their complete disappearance after 70 days in a case in which a cyst containing 5 adult *Filaria bancrofti* was excised from the elbow. R.T.L.

(b) Although Chandra has treated over 2,000 people with a mixture each dose of which contains 40 minims of carbon tetrachloride and 20 minims of oil of chenopodium, thoroughly shaken in an ounce of water and followed two hours later by an ounce of saturated magnesium sulphate, the case of jaundice and acute mania is the first untoward result he has experienced. R.T.L.

16—Journal of the American Medical Association.

a. LAMBERT, S. M.—"Hookworm disease in the South Pacific. Ten years of tetrachlorides." C (4), 247-248. [1933.]
b. CHITWOOD, B. G.—"Does the guinea-worm occur in North America?" C (11), 802-804. [1933.]

(a) Carbon tetrachloride has been used for ten years by Lambert in Fiji without a death or untoward symptoms and in over 100,000 consecutive treatments for hookworm disease. Tetrachlorethylene has been used with equal safety in more than 46,000 instances in the South Pacific Islands. Its more pronounced taste and greater anaesthetic effect make it less popular, but Lambert considers it to be the most satisfactory anthelmintic for hookworm. R.T.L.

(b) Although there are no valid records of *Dracunculus medinensis* in man in cases originating in the United States Chitwood has recently studied morphologically identical specimens from the silver fox from Iowa, from Ontario and New York, and from mink in Nebraska. The parasite does not appear to be a recent introduction for Leidy described it from the racoon

under the name *Filaria insignis* in 1858. Of the 10 cases of Guinea-worm in man in the United States recorded in the literature 4 are apparently of foreign origin and 5 are cases of *Loa loa* or of spurious parasitism and one possibly of *Gongylonema*. R.T.L.

17—Journal of the American Veterinary Medical Association.

a. HANSON, K. B.—" Tests of the efficacy of single treatments with tracheal brushes in the mechanical removal of lungworms from foxes." LXXXII (1), 12-33. [1933.]
b. SHAW, J. N.—" A liver function test in sheep." LXXXII (2), 199-204. [1933.]
c. ANON.—" Report of committee on parasitic diseases." LXXXII (3), 517-524. [1933.]

(a) Hanson finds that a tracheal brush has a high efficacy and is relatively safe and harmless in removing worms from the trachea of foxes, but that it is useless for worms situated in the bronchi.

Eucoleus aerophilus occurs in nasal chambers, trachea and bronchi, while *Creosoma vulpis* is found mainly in the bronchi and bronchioles. The brush is accordingly of value in diagnosis and cure of the former parasite only. He describes a simple home-made instrument consisting of a small brush (like a test-tube brush) on a wire handle (15 ins. long) and a length of rubber tubing (6½ ins. long) which serves as a guide. T.W.M.C.

(b) Shaw discusses the use of rose bengal in testing the excretory function of the liver of sheep infested with *Fasciola hepatica*.

10 cc. of a sterilized 1 per cent. solution of dye in 6 per cent. dextrose was injected into the jugular vein; 10 minutes later 10 cc. of blood was taken and mixed with 2 cc. of 2 per cent. potassium oxalate solution; 6 minutes later a second 10 cc. sample was taken. Both samples were centrifuged and the plasma diluted with two parts of saline and compared in the colorimeter. A 50 per cent. elimination in 8 minutes indicated normal function. In pregnant-ewe paralysis elimination was reduced but only in one case did *Fasciola* appear to cause reduction. T.W.M.C.

(c) A committee was set up to survey and report on parasitic diseases of animals in the United States of America.

Strongyles and ascarids were found to be very prevalent in horses, stomach worm and nodular worms in cattle and sheep while Moniezia is very common in sheep in the Middle West. Liver flukes were not causing much loss. Small trichostrongyles were frequently the cause of heavy mortality among lambs though they were often unobserved by the veterinarian. Trichinosis is assuming a vast importance, for it seems to be spreading among swine owing to the increasing number of rats which are becoming infected. The danger to man from eating improperly cured sausages is stressed. Among poultry much improvement is reported as having occurred in the last 10 years owing to intelligent education of the poultry farmer. Gapes is still troublesome, however, in some districts. Tapeworms are frequent but seldom cause any losses. Considerable advances have been made by research workers who have published results of improvements in diagnosis and treatment of various parasitic diseases. P.A.C.

18—Journal of the Council for Scientific and Industrial Research, Australia.

a. ROSS, I. C. & GRAHAM, N. P.—" A parasitological field trial on ' Gundowringa,' New South Wales, 1932." VI (1), 26-31. [1933.]

(a) Ross and Graham record the findings of the second year's experiments on the effect of heavy stocking of sheep on improved pastures in increasing the risk of parasitic infestation.

Five groups of sheep were grazed as follows: (1) on natural pasture; (2) on improved pasture; (3) as in (2) but treated monthly with carbon tetrachloride; (4) on improved pasture subdivided so that each unit was only stocked for one month in four; (5) as in (4) but treated monthly with carbon tetrachloride.

The authors found that the improved health of the sheep on the heavily stocked improved pastures amply compensated for any increased danger of infection met with and a marked increase in the production of both wool and mutton was obtained. Anthelmintic treatment appeared to have no influence on weight gains in the sheep but brought about a significant increase in wool production. D.O.M.

19—Journal of the Egyptian Medical Association.

a. HASSAN, A.—" A note on the treatment of bilharziosis with bismuth." XVI (1), 96. [1933.]

b. HASSAN, A.—" The susceptibility of Bilharzia miracidia to different salts and different p.H." XVI (3), 229-231. [1933.]

(a) Hassan confirms Medulla (1928) that Bismuth is ineffective in urinary bilharziosis. The drug used was Neo-Trepol which contains 0·08 grm. of precipitated Bismuth per cc. R.T.L.

(b) Dr. Ali Hassan finds that the miracidia of *Schistosoma haematobium* and of *S. mansoni* survive in a solution of pH 11 for half an hour but are killed in a solution of pH 5. They are killed in 4 hours in solutions of less than 1 per cent. of sodium chloride, potassium chloride, magnesium chloride, ammonium chloride and calcium chloride. R.T.L.

20—Journal of Helminthology.

a. SOLOMON, S. G.—" Faunistic note on a collection of helminthic material from Palestine." XI (1), 1-8. [1933.]

b. CLAPHAM, P. A.—" On the prophylactic action of vitamin A in helminthiasis." XI (1), 9-24. [1933.]

c. WARDLE, R. A.—" Significant factors in the plerocercoid environment of *Diphyllobothrium latum* (Linn.)." XI (1), 25-44. [1933.]

d. GOODEY, T.—" *Anguillulina graminophila* n. sp., a nematode causing galls on the leaves of fine Bent-grass." XI (1), 45-56. [1933.]

e. LEROUX, P. L.—" A preliminary note on *Bilharzia margrebowiei*, a new parasite of ruminants and possibly of man in Northern Rhodesia." XI (1), 57-62. [1933.]

f. SOUTHWELL, T.—" Hemirthology in its application to marine fisheries." XI (2), 63-66. [1933.]

g. CLAPHAM, P. A.—" On the life-history of *Heterakis gallinae*." XI (2), 67-86. [1933.]

h. THAPAR, G. S.—" On a new trematode of the genus *Astiotrema* Looss, 1900, from the intestine of a tortoise, *Chitra indica*." XI (2), 87-94. [1933.]

i. SOLOMON, S. G.—"On a new species of *Enterobius* from the marmoset (*Callithrix jacchus*)." XI (2), 95-100. [1933.]
j. SOLOMON, S. G.—"A note on a new species of *Breinlia* from a tree kangaroo." XI (2), 101-104. [1933.]
k. KHANNA, R. K.—"A new filarial worm from a North American snake." XI (2), 105-108. [1933.]
l. BUCKLEY, J. J. C.—"Some helminth parasites from domesticated animals in Southern Rhodesia." XI (2), 109-114. [1933.]
m. SWALES, W. E.—"On *Streptovitella acadiae* (gen. et sp. nov.). A trematode of the family Heterophyidae from the Black Duck (*Anas rubripes*)." XI (2), 115-118. [1933.]

(a) In a collection forwarded by Mr. Bodkin from Palestine Solomon found 1 trematode, 12 species of cestodes and 12 species of nematodes. The hosts were chiefly domesticated animals. R.T.L.

(b) Using *Heterakis gallinae* in chickens Miss Clapham concludes that the vitamin A content of the diet does not directly affect the resistance of these definitive hosts to infection with *Heterakis*. With *Ascaris equorum* used experimentally in rats it appears that the vitamin content of the diet significantly affects the fate of the helminths both as regards numbers and rate of development. It is concluded that the vitamin is effective in cases where the parasite comes into close contact with the host tissues. Thus more acute pneumonia occurs in rats fed with increased amounts of vitamin. R.T.L.

(c) Wardle has studied the influence of temperature, of the digestive juices and of physiological salines on the viability of the plerocercoids of *Diphyllobothrium latum* as their evaluation may form a basis for a technique of helminth cultivation *in vitro*. R.T.L.

(d) Goodey describes as *Anguillulina graminophila* a new species of gall-forming eelworm discovered by Mr. W. A. McDonald on fine bent grass (*Agrostis tenuis* Sibth) on the farm of the Institute of Agricultural Parasitology at St. Albans, and he has noted a definite association between this eelworm and the fungus *Dilophospora alopecuri*, the spores of the latter becoming attached to the bodies of the eelworm and so being distributed by it. R.T.L.

(e) Leroux has discovered a new species of Bilharzia in the portal veins of cattle, zebra, and several antelopes, in association at times with other species of bilharzia worms in Northern Rhodesia. He lists 10 species of the genus now known to occur in Africa. *B. margrebowiei* n. sp. resembles *B. japonica* in the design of the egg but the males have 4 to 5 testes and carry cuticular bosses on the dorsal surface. R.T.L.

(f) Southwell contributing to a symposium on Applied Helminthology at the British Association 1932 Meeting states that the only example of parasitism with helminths of economic importance known in marine fishes is the production of pearls in oysters by the larval stages of a tapeworm *Tylocephalum* sp. R.T.L.

(g) The life history of *Heterakis gallinae* and its host distribution in 33 species of 22 genera of birds are recorded by Miss Clapham. At no period was the larva found in any organ other than the lumen of the gut. R.T.L.

(h) Thapar gives an account of *A. indica* n. sp., a new species of the genus *Astiotrema* from *Chitra indica*. R.T.L.

(i) Solomon describes the first recorded species of *Enterobius* in marmosets and names it *E. callithricis*. It is nearly related to *E. microon* (v. Linstow, 1907). R.T.L.

(j) Solomon adds a second species *B. dendrolagi* n. sp. to the filarial genus *Breinlia*. R.T.L.

(k) Khanna names a new filarial worm found in *Coluber melanoleucus* from N. America, *Macdonaldius seetai* n. g., n. sp. R.T.L.

(l) J. J. C. Buckley has catalogued a mixed collection of helminths from domesticated animals in Southern Rhodesia. The list does not include any new forms. R.T.L.

(m) Swales has found in the Black Ducks (*Anas rubripes*) dying on the shores of Cole Harbour, Nova Scotia, great numbers of a minute trematode which he has named *Streptoviiella acadiae* n. g., n. sp. The new genus is related to *Diorchitrema* Witenberg, 1928. R.T.L.

21—Journal of Immunology.

a. McCOY, O. R., MILLER (Jr.), J. J. & FRIEDLANDER, R. D.—"Use of an intradermal test in the diagnosis of trichiniasis." XXIV (1), 1-23. [1933.]

(a) Although about 90 per cent. of persons ill with trichiniasis will give a positive skin test to trichinella antigen between 2 or 3 weeks after infection McCoy, Miller and Friedlander believe that a negative test will probably prove more useful than a positive one from the practical standpoint. Sensitization from a previous slight infection and the presence of *Trichuris trichiura* may complicate the interpretation of the test by giving a positive reaction. R.T.L.

22—Journal of Laboratory and Clinical Medicine.

a. KELLER, A. E.—"A study of the occurrence of unfertilized ascaris eggs." XVIII (4), 371-374. [1933.]

(a) Keller illustrates, by photographs, a series of unfertilized eggs of *Ascaris lumbricoides* of remarkably different contours and draws attention to their importance as possible sources of error of diagnosis of this parasite. Unfertilized eggs occurred alone in 26·2 per cent. of the cases recorded by him. R.T.L.

23—Journal of Parasitology.

a. HALL, M. C.—"Is parasitology a science?" XIX (3), 183-191. [1933.]
b. SANDGROUND, J. H.—"Two new helminths from *Rhinoceros sondaicus*." XIX (3), 192-204. [1933.]
c. VENARD, C.—"Helminths and Coccidia from Ohio Bobwhite." XIX (3), 205-208. [1933.]
d. HELMINTHOLOGICAL SOCIETY OF WASHINGTON.—"Proceedings of the 149th meeting." XIX (3), 242-256. [1933.]

(a) Hall here rebuts the charge that parasitology is not a science. He suggests that the scientific investigation of any group of natural facts, with the findings systematically arranged, constitutes a science, and that any one science or scientific fact is as important *scientifically* as any other, although its economic or personal importance may vary. B.G.P.

(b) From *Rhinoceros sondaicus* shot in the Malay States, by Mr. A. S. Vernay, Sandground describes a bursate nematode *Kiluluma vernayi* and a cestode *Anoplocephala diminuta*. *K. vernayi* in length of spicules bears much resemblance to *K. brevicauda* but differs from it most conspicuously in the length of the vagina and its horns, in the shape of the gubernaculum and in the preventral and extralateral rays. *A. diminuta* although only 7 to 12 mm. long and having only from 20 to 25 segments are sexually mature and on this account it is treated as a new species closely related to *A. manubriata* Railliet, Henry & Bauche, 1914. The author discusses the validity of several species of *Kiluluma* created in 1924 by Thapar.

R.T.L.

(c) Five nematode species have been collected by Venard from the Ohio bobwhite, *Colinus virginianus* viz., *Dispharynx spiralis*, *Seurocyrnea colini*, *Heterakis gallinae*, *H. bonasae* and *Subulura strongylina*. Lesions were found only in cases infected with *D. spiralis* and *S. colini*. A cestode apparently *Hymenolepis* sp. occurred in fragments. [The paper deals chiefly with the 3 species of *Coccidia* found.] R.T.L.

(d) In this series of short abstracts twenty-eight helminthological abstracts are dealt with by the Secretary. R.T.L.

24—Journal of the South African Veterinary Medical Association.

a. MÖNNIG, H. O.—"A new species of Setaria from antelopes." IV (1), 21-23. [1933.]

(a) Mönnig describes a new species, *Setaria thwaitei*, from the peritoneal cavity of the sable antelope (type host) and roan antelope in the Northern Transvaal, and from the water-buck.

The head bears a peribuccal ring notched dorsally, ventrally and laterally so as to form four lips. The male, 88-98 mm. by 0·66-0·68 mm., has 4 preanal and 4 postanal pairs of papillae and an unpaired preanal papilla which also occurs in *S. equina*. The female is 215-280 mm. by 0·95-1·28 mm.

B.G.P.

25—Journal of Tropical Medicine and Hygiene.

a. FROES, H. P.—"Presence of Microfilariae in the ascitic-sero-fibrinous effusion of a patient infested with *Wuchereria bancrofti*." XXXVI (1), 6. [1933.]
b. DAY, H. B.—"Bilharzial cirrhosis (Egyptian splenomegaly)." XXXVI (2), 17-23. [1933.]

(a) Froes has detected *Microfilaria bancrofti* in the ascitic fluid of a patient also infested with *Strongyloides stercoralis*. The case appears to be the one described by the author in 1932 in Brasil Medico [Helm. Abs. Vol. I, No. 193*a*] and again in Annales de Parasitologie this year [Helm. Abs. Vol. II, No. 3*b*]. B.G.P.

(b) *Schistosoma mansoni* is the cause of hepatic cirrhosis and splenomegaly in Egypt and Day gives here a detailed account of their pathology and symptomatology, diagnosis and treatment. The concomitant enlargement of the liver distinguishes a bilharzial from a malarial splenomegaly while the blood shows a very distinct eosinophilia and an absence of malarial parasites. Fever resists quinine but rapidly subsides on the administration of antimony. R.T.L.

26—Lancet.

a. LOW, G. C. & MANSON-BAHR, P. H.—" Some recent observations on filarial periodicity." With a clinical and laboratory report by A. H. Walters. CCXXIV (5714), 466-468. [1933.]
b. MURGATROYD, F.—" Filarial periodicity." CCXXIV (5716), 610. [1933.]

(a) A series of observations is related which supports the contention that the sleeping and waking states are primary factors in the periodicity phenomena in *Filaria bancrofti*. R.T.L.

(b) A human volunteer was transfused by Dr. Murgatroyd with citrated blood containing 720,000 embryos of *Filaria bancrofti* from a case showing nocturnal periodicity. The blood from the ear of the recipient failed to show any embryos at the end of the transfusion and 3, 6, 12 and 21 hours later. Embryos were not found on frequent examinations during several subsequent days. R.T.L.

27—Live Stock Journal.

a. ANON.—" Control of worm infestation." CXVII (3074), 251. [1933.]

(a) The adoption of the McLean County System of Swine Sanitation on a Lancashire farm has been successful in the control of the large round worm, *Ascaris lumbricoides*.

By frequent dosing the pigs were cleared of infestation before being transferred to a clean field or fattening pen. Thorough sanitary measures are considered to be essential. D.O.M.

28—Malayan Medical Journal.

a. MILNE, J. C.—" A case of beta-naphthol poisoning." VIII (1), 73-74. [1933.]

(a) Milne describes the sudden, fatal collapse of a Tamil a few hours after being treated for hookworm with two doses of 10 grains beta-naphthol. The mucosa of stomach and duodenum was covered with small haemorrhagic spots and the kidneys were congested. Presumably the patient had an idiosyncrasy to the drug. B.G.P.

29—Medical Journal of Australia.

a. BRADLEY, B.—" Some observations on Australian human trematode endemiology based on local sheep fluke investigations." 20th Year. I (8), 245-251. [1933.]

(a) Bradley believes that an enquiry into the possibilities of importation and spread of certain trematode infections of man in Australia is a matter of urgency.

The author recalls the chief facts of trematode epidemiology and the special physiographical and biological factors in Australia. The bionomics of *Limnaea brazieri* and *Bulinus brazieri* are discussed in detail. However, in Australia there are no near allies to the known carriers of *Schistosoma japonicum*, *Paragonimus ringeri* or *Clonorchis sinensis*. The risk may depend on new introductions of intermediate hosts. R.T.L.

30—Medicina de los Países Cálidos.

a. LOPEZ-NEYRA, C. R. & TORRES LOPEZ, A. J.—" Forma clinica curiosa por asociación parasitaria de ascaris y de tricocéfalos." VI (1), 8-19. [1933.]
b. CALATAYUD, A. R.—" El parasitismo intestinal por Vermes en sus relaciones con la infección tuberculosa." VI (1), 27-50. [1933.]
c. CALATAYUD, A. R.—" El parasitismo intestinal por Vermes en sus relaciones con la infección tuberculosa." VI (2), 104-132. [1933.]

(a) Lopez-Neyra and Torres Lopez recognize a distinct clinical type due to mixed infection with Ascaris and Trichuris.

From a detailed examination of 10 cases they find that severe diarrhoea, with 4-14 evacuations per day, the passing of bloody mucus, and occasionally tenesmus are typical symptoms. Treatment with santonin and saline purge, repeated if necessary, is effective. B.G.P.

(b) Calatayud is experimentally testing the theory put forward by Pittaluga, that intestinal worms develop more readily in patients already suffering from disease of a toxic or infectious nature, by examining 100 healthy and 100 tuberculous children.

The author uses the Willis and Telemann techniques for intestinal helminths, and the tuberculin reaction. A differential white-cell count and thoracic radioscopy were employed in each case, and occasionally the gastroduodenal region and the vertebrae were also radioscopically examined. This first part includes the data for the 100 healthy children. B.G.P.

(c) In this second part Calatayud presents the data for the 100 tuberculous children and summarizes the results. [See previous abstract.]

Of the healthy children 20 per cent. were parasitized and of the sick, 54 per cent. Eosinophilia was common among the parasitized, being more constant and intense in the case of trichuris infections. The data are summarized in a variety of ways: distribution of parasites among clinical types, tuberculin reaction by age-groups, distribution of parasites according to haematological findings. *Hymenolepis nana* and trichuris appear to be the commonest parasites. B.G.P.

31—Mitteilungen aus der Biologischen Reichsanstalt für Land- und Forstwirtschaft.

a. GOFFART, H.—" Ueber die Nematodenfauna der Kartoffel." No. 47. [Reprint 30 pp.] [1933.]

(a) Goffart gives brief accounts of all the nematode species which are found within the potato plant.

He divides the nematode fauna into three groups, true parasites, forms of doubtful pathogenic significance, and forms inhabiting rotting tissues. The diagnostic characters of the species are given in each case and several species are figured. The symptoms produced by the parasitic forms, and their economic significance are briefly dealt with. Among the true parasites the following species are included: *Anguillulina dipsaci* Kühn 1859; *A. pratensis* (de Man 1884) Goffart 1929; *Neotylenchus abulbosus* Steiner 1931; *Heterodera schachtii* Schmidt 1871; *H. marioni* (Cornu 1879) Goodey 1932.

The second group, forms of doubtful pathogenicity includes *Macrolaimus crucis* Maupas 1900; *Rhabditis brevispina* (Claus 1863) Bütschli 1873; *R. monohystera* Bütschli 1873; *R. cryptocercoides* Wollenweber 1921; *Cephalobus rigidus* (A. Schneider 1866) de Man 1885; *Anguillulina gracilis* (de Man 1880) Goodey 1932 var. *minor* n.v.; *Aphelenchus parietinus* Bastian 1866; *A. pseudoparietinus* Micoletzki 1921; *Aphelenchus* spec. Wollenweber 1921. Species recorded from rotting tissues of potato are *Diplogaster lheritieri* Maupas 1919; *D. microcerca* Wollenweber 1921; *Rhabditis aspera* Bütschli 1873; *Hexatylus viviparus* Goodey 1926; *Anguillulina turbo* (Marc. 1909) Goodey 1932; and *Aphelenchus avenae* Bastian 1865.

M.J.T.

32—Nature.

a. FRASER, A. H. H. & ROBERTSON, D.—"Nutritional condition of sheep and susceptibility to stomach worms." CXXXI (3299), 94. [1933.]

b. BROWN, F. J.—"Life-history of the fowl tapeworm, *Davainea proglottina*." CXXXI (3304), 276-277. [1933.]

(a) As parasitic infection frequently constitutes a limiting factor in the carrying capacity of pastures, Fraser and Robertson have attempted to determine experimentally the degree to which differences in clinical condition, produced by nutritional means, might affect the degree of parasitic infestation of sheep exposed to an equal chance of infection. Two groups of four months old lambs were grazed on worm infected pastures: one group having been well fed, the other poorly fed. After six weeks the lambs showed in the fourth stomach an average number of 31 worms in the well fed group and 103 worms in the poorly fed group. There were surprising variations in both groups. Nevertheless the nutritional state of the sheep apparently played a significant rôle. R.T.L.

(b) Brown has been able to confirm the susceptibility of the slug *Agriolimax agrestis* in England to infestation with *Davainea proglottina*. The experimental slugs were kept in petri dishes lined with damp filter paper and fed on wheat grown in the laboratory on moist flannel. At 16°C. cysticercoids developed in 21-22 days: at 24°C. in 12-13 days. Wetzel's recent observations are confirmed. R.T.L.

33—North American Veterinarian.

a. SLATTER, E. E., PARK, S. E. & GRAHAM, R.—"Studies of horses treated for Strongylidosis." XIV (3), 19-33. [1933.]

(a) Slatter, Park and Graham record the results of treatment of 140 Army horses for Strongylidosis with oil of chenopodium and carbon tetrachloride.

In general there was a noticeable improvement in condition following treatment. In a group of 21, subjected to repeated treatment, the improvement was correlated with increased body weight and undulating, but rising, haemoglobin content of the blood. Following the anthelmintic, sodium cacodylate, subcutaneously, seemed to exert a favourable tonic effect.

T.W.M.C.

34—Nuova Veterinaria.

a. MONTRONI, L.—" Tiflite nodulare parassitaria in un fagiano." XI (2), 55-57. [1933.]

(a) Montroni here describes the histology of nodular typhlitis caused by *Heterakis isolonche* in pheasants.

The female worms, characterized by the presence of vulvar papillae, were mostly within the nodules while the males, characterized by sub-equal spicules, were mostly free in the lumen of the caecum. The nodules, which occur in the sub-mucosa, are composed of cells resembling fibroblasts, with large nuclei and homogeneous protoplasm. There are also masses of degenerate giant cells containing safranophile granules. The purpose and possible origin of these quite distinct tissue-elements are discussed.

B.G.P.

35—Parasitology.

a. TSENG, SHEN.—" Studies on avian cestodes from China. Part II. Cestodes from Charadriiform birds." XXIV (4), 500-511. [1933.]

b. HSÜ, H. F.—" On some parasitic nematodes collected in China." XXIV (4), 512-541. [1933.]

c. ARCHIBALD, R. G. & MARSHALL, A.—" Note on a Schistosoma cercaria with four pairs of flame cells in the body." XXIV (4), 542-544. [1933.]

d. JONES, E. I.—" Fertilisation and egg formation in a digenetic trematode, *Podocotyle atomon*." XXIV (4), 545-547. [1933.]

e. HARWOOD, P. D.—" The helminths parasitic in a water-moccasin (snake) with a discussion of the characters of the Proteocephalidae." XXV (1), 130-142. [1933.]

(a) Nine further species of cestodes are described from Charadriiform birds of China by Tseng. Seven are new viz., *Amoebotaenia fuhrmanni*, *A. pekinensis*, *Monopylidium guiarti*, *Choanotaenia joyeuxi*, *Haploparaxis sinensis*, *Fuhrmanniella clerci* and *Gyrocoelia fausti*. R.T.L.

(b) Hsü describes ten nematodes of which seven are new species viz., *Rhabdias annulosa* from a snake *Zaocys dhumnades*; *Pingus sinensis* n. g., n. sp. type of a new family Pingidae found in a fish *Ophicephalus argus*; *Omeia hoepplii* n. g., n. sp. from *Rana tibetana*; *Thelazia chungkingensis* from the bird *Chibia hottentotta brevirostris*; and three species of *Oxyspirura* viz., *O. kaitingensis*, *O. peipingensis* and *O. tsingchengensis*. R.T.L.

(c) A bifid tailed cercaria with four pairs of flame cells in the body developed experimentally in a monkey into *Schistosoma haematobium*. Archibald and Marshall regard this as an abnormal type of cercaria as the cercaria of *S. haematobium* usually possess only three pairs of glands in the body. R.T.L.

(d) The process of fertilization has seldom been described in the Digenea. Jones has traced the history of the ovum from the time it leaves the ovary until it enters the uterus as a complete egg in *Podocotyle atomon*. R.T.L.

(e) In a snake *Agkistrodon piscivorus* caught near Houston, Texas, Harwood found five species of helminths of which only one had been previously reported from this host and one *Proteocephalus* (*Ophiotaenia*) *agkistrodontis* is new.

The author discusses the characters of the Proteocephalidae and Monticelliidae and concludes with a consideration of phylogeny of the group.

R.T.L.

36—Pelztierzucht.

a. GRINI, O.—" Die Krankheiten des Mink." IX (1), 1-5. [1933.]
b. GRINI, O.—" Die Krankheiten des Mink. IX (2), 23-28. [1933.]
c. STETTER, R.—" Lungen- und Darmparasiten beim Silberfuchs und ihre Bekämpfung." IX (3), 33-36. [1933.]
d. GRINI, O.—" Die Krankheiten des Mink." IX (3), 39-42. [1933.]

(a) In an account of diseases of mink, translated from Norwegian, Grini mentions that, as in the fox, parasites are the principal causes of disease. So many different parasites (trematodes, cestodes, nematodes and coccidia) are usually present that it is difficult to say which group is mainly to blame. [The present paper describes different varieties of mink and goes on to deal with coccidiosis ; it is to be continued.] B.G.P.

(b) In this second paper Grini deals with some trematode, nematode and cestode parasites of the mink.

The numerous trematodes, which are all intestinal in Norway, belong to two species at least : one is probably *Alaria* sp., possibly *A. michiganensis*. It is difficult to assess the damage due to flukes, since other parasites are usually present in a given case, but flukes are sometimes so numerous as to be held responsible for the death of the mink. In other localities the following flukes have been recorded : *Paragonimus kellicoti*, *Euphargyhium melis*, *Euryhelmis squamula*, *Nanophyetus salmincola*, *Troglotrema acutum* and *Parametorchis canadensis*.

The nematodes of mink in Norway include *Eustrongylus gigas*, the pathology of which is briefly described from 3 cases which came under Grini's notice, *Gnathostoma spinigerum*, a minute intestinal form which may be a *Molineus* sp., a capillarian (based on ova only), connective-tissue nematodes, and a lung-worm.

Cestodes have been found in 7 cases. Elsewhere *Mesocestoides literatus* has been recorded, but it is not yet known whether this is the form found in Norway. B.G.P.

(c) Stetter describes the intestinal parasites and lungworms of the silver fox and suggests therapeutic and prophylactic measures.

In this first part he deals with *Crenosoma decoratum* and *Eucoleus aerophilus* from the lungs, and with *Ancylostoma caninum* and *Uncinaria stenocephala* from the small intestine. Biological and clinical information intended for the actual breeder is given in the form of detailed answers to a series of practical questions. B.G.P.

(d) In this third and final paper on the diseases of mink Grini concludes the section on helminthic parasites and deals briefly with infectious diseases.

Paragonimus kellicoti, first found in mink in 1927, has been recorded from France, Germany, America, and now Norway. Parasite, lesions and clinical symptoms are briefly described. The mink infected with *Paragonimus* also carried *Euryhelmis squamula*, and a fluke resembling Alaria. B.G.P.

37—Philippine Journal of Science.

a. TUBANGUI, M. A.—" Notes on Acanthocephala in the Philippines." L (2), 115-128. [1933.]

(a) To the two known Acanthocephala of the Philippines Tubangui has added six additional records of which five represent new species, viz., *Neoechinorhynchus octonucleatus* n. sp. from a freshwater fish *Therapon argenteus*; *Echinorhynchus centropusi* n. sp. from *Centropus viridis*; *Prosthorhynchus limnobaeni* n.sp. from *Limnobaenus fuscus*; *Centrorhynchus insularis* n. sp. from the birds of prey *Haliastur intermedius*, *Butastur indicus* and *Spilornis bacha*; *Empodius turnixena* n. sp. from *Turnix ocellata*. Numerous immature specimens of *Oligacanthorhynchus pomatostomi* Johnston & Cleland 1911 were found encysted in the neck tissues of the birds *Hypotaenidia philippensis* and *Excalfactoria lineata*. R.T.L.

38—Phytopathology.

a. GODFREY, G. H. & HOSHINO, H. M.—" Studies on certain environmental relations of the root-knot nematode, *Heterodera radicicola*." XXIII (1), 41-62. [1933.]

b. STEINER, G. & BUHRER, E. M.—" The bulbous irises as hosts of *Tylenchus dipsaci*, the bulb or stem nema." XXIII (1), 103-105. [1933.]

c. HOSHINO, H. M. & GODFREY, G. H.—" Thermal death point of *Heterodera radicicola* in relation to time." XXIII (3), 260-270. [1933.]

(a) Godfrey and Hoshino describe experiments to determine the effects of various degrees of humidity including complete drying, and exposure to sunlight and ultraviolet rays on larvae, isolated eggs and egg masses of *Heterodera radicicola*.

Complete dryness was lethal to all larvae in 3 minutes. Most isolated eggs were killed by this treatment in 30 minutes, but those in egg masses survived up to 2 hours. Both larvae and eggs quickly succumbed under conditions of low humidity, and exposure to 90 per cent. humidity was fatal to all larvae in 30 minutes, and all eggs in 6 hours. Ultraviolet radiation was found to produce a lethal effect on both larvae and eggs. The combined effects of sunlight, heat, and drying caused the death of the nematodes in a very short time. M.J.T.

(b) Steiner and Buhrer record 32 cases of *Tylenchus dipsaci* in bulbous irises, a host previously recorded only by Ritzema Bos. Some of the bulbs were grown in the U.S.A., others had been imported from Europe.

Unlike narcissus and hyacinth, the first lesions on the iris occurred on the outer surface of the bulb and the rot spread inwards. Further, the foliage leaves, though stunted, were seldom invaded by the nematodes. Death of infected bulbs occurred in about 6 months. Hot water treatment has so far proved unsatisfactory in that it has an adverse effect upon the plants themselves. M.J.T.

(c) Hoshino and Godfrey describe experiments designed to determine the minimum period of time required for the complete killing of larvae

and egg masses of *Heterodera radicicola* exposed to direct hot water treatment at a wide range of temperatures.

The results of the experiments are tabulated in such a way as also to show the percentage survival of the nematodes at different temperatures and periods of time. The range of lethal temperatures used, and periods of time at which they are completely effective, vary from 40°C., a temperature requiring 2 hours 7·5 minutes, to 53°C. requiring 1 second only, for the killing of the larvae. The eggs were found to be more resistant to heat, the minimum lethal time at 40°C. being 4·5 days and 53°C., 37·5 seconds, while a temperature of 58°C. killed all the eggs in 1 second. It is pointed out that the lethal temperatures here cited are much lower than those required in practice when it is desired to kill larvae or eggs in soil or in plant tissues, as allowance must then be made for the necessary temperatures to reach the actual site of the nematodes. M.J.T.

39—Policlinico (Sezione Pratica).

a. LOMBARDI, E.—" Su d'un caso d'infestazione da Anguillula intestinale, in provincia di Napoli." XL (13), 492-495. [1933.]

(a) Lombardi gives clinical details of a case of infection with *Strongyloides stercoralis*, in which there were marked gastro-intestinal disturbances, from the Province of Naples. B.G.P.

40—Proceedings of the Society for Experimental Biology and Medicine.

a. TURNER, E. L., BERBERIAN, D. A. & DENNIS, E. W.—" Successful artificial immunization of dogs against *Taenia echinococcus*." XXX (5), 618-619. [1933.]

(a) Turner, Berberian and Dennis have shown that it is possible to induce in dogs a marked degree of resistance to *Taenia echinococcus*. Dogs were immunized by 5 consecutive injections at 3 to 5 day intervals. An antigen was prepared from hydatid scolices and membrane from cattle. The material was dried at 37°C. and powdered and used as a 1 per cent. Phenolized (0·5 per cent.) suspension. The first dose was 0·5 cc., given subcutaneously, the subsequent doses were 1 cc. given intramuscularly. From 6 to 15 days after the last injection the dogs were fed with fresh fertile hydatid cysts. The immunized dogs remained free while the controls showed intense infections with *T. echinococcus*. R.T.L.

41—Proceedings of the United States National Museum.

a. WALTON, A. C.—" Two new nematodes, and notes on new findings of nematodes parasitic in amphibia." LXXXII (Art. 6), 1-5. [1933.]

(a) Walton lists six nematodes of amphibia in several new hosts and describes two new species, viz., *Pharyngodon armatus* from *Rana pipiens* and *R. clamitans* and *Oxysomatium punctatum* from *Rana vittigera*. In each instance the male is unknown. R.T.L.

42—Publications. Carnegie Institution of Washington.

a. MANTER, H. W.—"The genus *Helicometra* and related trematodes from Tortugas, Florida." No. 435, pp. 167-182.

(a) Manter deals here with three genera of the Allocreadiinae, viz., *Helicometra*, *Helicometrina* and a new genus *Stenopera*.

A key is given for the six species of the genus *Helicometra*, three of these occur at Tortugas. The metacercaria of *Helicometrina nimia* was found encysted in the thoracic muscle of the shrimps *Lysmata intermedia* and *Crangon formosum*. A new species *Helicometrina parva* with 5 testes and a trilobed ovary, occurred in *Iridio bivitatus*. In a mutilated *H. torta* little or no regeneration was observed beyond the secretion of cuticle. R.T.L.

43—Science.

a. DAMPF, A.—"Concentration of microfilariae by the salivary secretions of blood-sucking insects." LXXVII (1984), 20-21. [1933.]

b. STILES, C. W.—"Is it 'Fair to say that hookworm disease has almost disappeared from the United States?'" LXXVII (1992), 237-239. [1933.]

(a) Dampf has observed the concentration of Onchocerca embryos about the site of the bite of the sandfly in Mexico and has published in 1931 a method for the diagnosis of Onchocerciasis in man by the dissection of engorged simulids. R.T.L.

(b) Stiles quotes, controversially, the 13th Annual Report (1927 for 1926) of the International Health Board and shows that hookworm control still remains a major public health problem in the Gulf-Atlantic States. R.T.L.

44—Scientific Agriculture.

a. BAKER, A. D.—"Some observations on the development of the caecal worm, *Heterakis gallinae* (Gmelin, 1790) Freeborn, 1923, in the domestic fowl." XIII (6), 356-363. [1933.]

(a) Baker considers that studies on the development of *H. papillosa* in chickens, probably refer to *H. gallinae*. During the early stages of parasitic life, the larva is closely associated with the caecal mucosa but after the fourth day, they remain free in the lumen. Development is frequently completed within 30 days. Blackhead is often present by the second week after ingestion of the worm eggs and this disease seems to retard development of the worm. T.W.M.C.

45—Scottish Naturalist.

a. FOGGIE, A.—"A note on helminth parasites of poultry." No. 200, pp. 60-64. [1933.]

(a) Foggie has made a survey of the parasites of fowl, ducks and pigeons in Edinburgh. He finds that *Heterakis gallinae* is the commonest form in fowl but *Capillaria dujardini*, and *C. retusa*, *Trichostrongylus tenuis* and *Anoplocephala minima* also occur. The ducks, which may have originated in England, contained *Capillaria anatis*, *Tropisurus fissispinus*, *Notocotylus attenuatus*, *Strigea tarda*, *Typhlocoelum flavum*, *Psilochasmus oxyurus* and *Weinlandia megalops*. In local pigeons, he found *Capillaria dujardini*, *Harmostomum commutatum* and *Raillietina columbae*. T.W.M.C.

46—Tierärztliche Rundschau.

a. HINZ, W.—" Über die Möglichkeit der Einschränkung der Giftwirkung oral applizierter Wurmmittel auf den Wirtsorganismus unter besonderer Berücksichtigung des Chenopodiumöles." XXXIX (3), 38-40. [1933.]

(a) Hinz has shown, experimentally on dogs, that the well-known toxic effects of oil of chenopodium can be completely removed by using medicinal charcoal as an adsorbing vehicle.

The charcoal is saturated with the drug, but no excess oil is permitted; in this form 10 drops of the oil per kgm. body weight can be given without producing symptoms of intoxication, whereas ordinarily 2 drops per kgm. are intoxicating. The author considers that anthelmintic efficiency will not be completely lost since the different coefficients of expansion of the oil and charcoal respectively will cause small amounts of the oil to be released at the temperature of the host's body. Further details are promised in a forthcoming paper by Wetzel. B.G.P.

47—Tijdschrift voor Diergeneeskunde.

a. SCHOON, J. G.—" Ervaringen bij het onderzoek op *Cysticercus inermis*." LX (1), 17-26. [1933.]

b. KUIPERS, K. R.—" Cysticercose bij het schaap." LX (2), 68. [1933.]

c. VEENENDAAL, H.—" Verzadigde magnesiumchlorideoplossing ($MgCl_2$) een bij het faecesonderzoek voor de praktijk geschikte vloelstof voor het aantoonen van z.g. lintwormeieren (oncosphaeren)." LX (3), 130-133. [1933.]

(a) Schoon discusses the eradication of bovine cysticercosis, based on his experience in meat inspection.

The high incidence of *C. bovis* (4 per cent.) found at Nymegen is due to the method of inspection. Two even, clean cuts are made into the masticatory muscles on either side of the jaw and three into the heart. The appearance of cysticerci in different stages is described, as well as the variable development of the surrounding capsule. The technique of viability tests in bile and the viability of cysticerci in bile are discussed, with reference to possible reinspection and legal matters. The large percentage of cases with a single cysticercus is notable. Human Taeniasis should be combated in the country by education of farmers and more effective meat inspection. The author appears to consider that insurance against cysticercosis does not stimulate eradication and is undesirable. H.M.

(b) Kuipers records a severe infestation of *Cysticercus ovis* in a sheep. The parasites were found in the subcutaneous connective tissue as well as in all muscles. H.M.

(c) Veenendaal recommends a saturated solution of Magnesium chloride for the flotation of cestode oncospheres and other worm eggs.

The author discusses briefly the best known methods of faeces examination for worm eggs. Most fluids used for flotation are not suitable for cestode and trematode eggs. The high specific gravity of a saturated $MgCl_2$ solution, together with its low viscosity, make it a very suitable medium in which oncospheres of dog tapeworms as well as nematode eggs were found to float readily. H.M.

48—Transactions of the American Microscopical Society.

a. DIKMANS, G. & ANDREWS, J. S.—"A comparative morphological study of the infective larvae of the common nematodes parasitic in the alimentary tract of sheep." LII (1), 1-25. [1933.]

b. LINTON, E.—"On the occurrence of *Echinorhynchus gadi* in fishes of the Woods Hole region." LII (1), 32-34. [1933.]

c. JELLISON, W. L.—"Parasites of porcupines of the genus *Erethizon* (Rodentia)." LII (1), 42-47. [1933.]

d. KRULL, W. H.—"*Loxogenes bicolor*, a new pigmented fluke from the frog, *Rana clamitans* Latr." LII (1), 47-50. [1933.]

e. ACKERT, J. E. & BEACH, T. D.—"Resistance of chickens to the nematode, *Ascaridia lineata*, affected by dietary supplements." LII (1), 51-58. [1933.]

(a) Dikmans and Andrews, in an extensive morphological study of the infective larvae of a number of nematode parasites of sheep, consider that an accurate generic diagnosis, based on larval characters, is not an easy matter under the low power of a binocular microscope.

After reviewing the contributions made by other workers on larval morphology, the authors give a detailed description of the infective larvae of the following species: *Haemonchus contortus*, *Ostertagia circumcincta*, *O. mentulata*, *Trichostrongylus instabilis*, *T. vitrinus*, *Cooperia oncophora*, *C. curticei*, *Monodontus trigonocephalus*, *Nematodirus spathiger*, *Oesophagostomum columbianum*, and *Chabertia ovina*.

In the discussion on morphological characteristics of diagnostic value it is pointed out that, owing to overlapping, neither the length of the tail nor that of the tail sheath of infective larvae belonging to the genera *Haemonchus*, *Cooperia*, *Ostertagia* and *Trichostrongylus* is reliable as a distinguishing feature. Other characters must, therefore, be taken into consideration and where a mixed culture contains the larvae of several species of the smaller Trichostrongylidae an accurate diagnosis becomes exceedingly difficult.

The paper is well illustrated and the tabular summaries give the important diagnostic characters as well as the principal measurements of the larvae.

D.O.M.

(b) Linton records the presence of *Echinorhynchus gadi* from four species of fish in the district of Woods Hole. He draws attention to the diversity of form which occurs in the species.

E. gadi have been found in the gut of various sharks, skates and teleosts but he assumes that they have been introduced with the food as they were in a partly digested condition. He has examined a large number of specimens of *E. gadi* and finds considerable variation occurring in the length of the proboscis, in the arrangement, number and size of the hooks, and in other structural details. He gives some actual figures of the differences found.

P.A.C.

(c) Jellison examined porcupines and found various insect parasites, together with four roundworms, a large number of tapeworms and one Linguatulid.

The four roundworms represented four different genera. They were *Wellcomia evoluta*, of which many heavy infestations were found in the small intestine, caecum and colon; *Dirofilaria spinosa*, 8 females of which were observed in the connective tissue of a single porcupine; *Dipetalonema*

diacantha which was found in the peritoneal fluid of 5 animals ; *Microfilariae* were found in the blood of three porcupines from Minnesota. They were extremely abundant and as adults of *Dipetalonema* and *Dirofilaria* were found in the affected animals, it is suggested that these larvae may have been connected with them.

Every animal was heavily infested with cestodes, the identification of which is not given.

All these parasites have already been recorded from porcupines but mainly from specimens which have died in confinement in zoological gardens.

P.A.C.

(d) Krull describes a new fluke which he has obtained from *Rana clamitans* for which he suggests the name *Loxogenes bicolor* n. sp.

The fluke belongs to the family Lecithodendriidae in the genus *Loxogenes* Stafford, 1905. It differs from other species of that genus on account of its larger size, pigmented cuticle and the position of the vitellaria and genital pore. Its location in the host is the terminal portion of the bile duct. It exhibits a marked host specificity, closely related frogs in the same ponds being negative for the fluke. P.A.C.

(e) Ackert and Beach find that a purely vegetable diet does not induce rapid growth in the chickens or a strong resistance to *Ascaridia lineata*.

140 chicks were used in the experiment. All had the same cereal basal ration. Group 1 had supplementary rations of meat meal and skim milk ; group 2 had meat meal and group 3 had peanut meal. After being fed these rations for 6 weeks, they were fed 500 embryonated eggs of *A. lineata*. Group 1 made the greatest growth and were most resistant to the worms, No significant differences obtained in the numbers of worms removed from groups 2 and 3, but those from group 3 were longer and better developed. The authors attribute the results to the limited range of amino acids in vegetable tissues. P.A.C.

49—Transactions of the Royal Society of Tropical Medicine and Hygiene.

a. BUXTON, P. A.—" The effect of climatic conditions upon populations of insects." XXVI (4), 325-356. [1933.]

b. GIGLIOLI, G.—" A contribution to the study of the etiology of the disease syndrome in *Wuchereria bancrofti* infection." XXVI (4), 379-382. [1933.]

(a) Buxton infers that low humidity imposes limits on infection with *Filaria* and assumes that filarial infection is a disease of the damp tropics. He sees some correlation between the presence of infection in India with the area of high rainfall and notes that filarial infection is absent in just that part of the Madras Presidency in which the monsoon precipitation is below 10 inches. R.T.L.

(b) In a typical case which presented Elephantiasis of the leg and had frequent attacks of lymphangitis, Giglioli by injecting turpentine induced the formation of a chemical abscess in the thick part of the diseased tissues at the height of an attack of lymphangitis, but failed to bring *Streptococci* into evidence. He concludes that this negative experiment definitely corroborates O'Connor's thesis that the syndrome associated with *Filaria bancrofti* is exclusively due to the parasite and that the presence of pyogenic organisms has only the significance of a secondary infection. R.T.L.

50—Veterinary Medicine.

a. ANON.—"Examination of feces for parasite eggs." XXVIII (1), 6-15. [1933.]
b. CAMPBELL, W. G.—"Live-stock remedies." XXVIII (1), 39. [1933.]
c. WRIGHT, W. H., BOZICEVICH, J., UNDERWOOD, P. C. & SCHAFFER, J. M.—"N-butylidene chloride, a new anthelmintic." XXVIII (2), 52-64. [1933.]
d. [HALL, M. C.]—"Internal parasites of the dog." XXVIII (3), 100-104. [1933.]

(a) This well illustrated article discusses the methods of faecal diagnosis of parasites, including smear and sugar techniques.

Full details are given of the apparatus required and the technique necessary for these well-known methods, and numerous microphotographs of common helminth eggs and coccidial oöcysts are included. T.W.M.C.

(b) Campbell states that tests have shown that a variety of poultry preparations on the market which contain kamala, nicotine and iodine, although labelled as possessing anthelmintic properties, are not effective in expelling worms. Such products are accordingly misbranded under the U.S. Federal Food and Drugs Act. He points out that efficacy claims made for worm remedies based solely on clinical observations are not considered justified. T.W.M.C.

(c) Wright, Bozicevich, Underwood and Schaffer report additional tests on normal butylidene chloride in carnivores, horses, cattle and poultry.

In doses of 0·3 cc. per kilo body weight it is very effective against ascarids and hookworms in dogs and cats; in doses of 0·1 cc. per kilo of body weight it is effective against sclerostomes and oxyurids; and in doses of 1 cc. to 6 cc. it is effective against Ascaridia in chickens, but not against Heterakis. Tests in calves were not conclusive. No gross lesions followed the use of this drug but degenerate changes were observed in the liver and kidney, especially in young animals, but it was never so severe as in the case of carbon tetrachloride. T.W.M.C.

(d) In these notes of an address, at a Post Graduate Short Course for Veterinarians, Hall discusses the anthelmintic treatment of dogs. For ascarids he favours chenopodium followed by an ounce of castor oil; danger lies in failure to secure purgation. For hookworm tetrachlorethylene is the best. Cases of blindness in dogs are due to tetrachlorethane. For taeniasis, arecoline hydrobromide is probably the best for general use. Cats are highly susceptible to anthelmintics; for tapeworm the dose of arecoline hydrobromide should be very small, one-eighth to one-sixteenth of a grain. R.T.L.

51—Veterinary Record.

a. EATON, G.—"Use of the tracheotomy tube in verminous broncho-pneumonia medication." XIII (3), 46. [1933.]

(a) Surgical intervention has proved of value to Eaton in the treatment of husk in cattle. Following the slitting of one or two tracheal rings and the insertion of a tube the respiration is immediately relieved. The usual intratracheal remedies can then be injected slowly once or twice daily through the tube by means of an ordinary hypodermic syringe without unfortunate sequelae. R.T.L.

52—Vortragsfolge der Leipziger Ökonomischen Societät.

a. SPREHN, C.—"Ueber wirtschaftlich wichtige Parasiten und parasitäre Krankheiten der Haustiere und ihre Bekämpfung." [Reprint 14 pp.] [1933.]

(a) Sprehn has given a popular account of some of the principal parasites and parasitic diseases of domesticated animals, touching upon symptoms, relative incidence, treatment, and methods of control based on a knowledge of life-histories. B.G.P.

53—Zeitschrift für Parasitenkunde.

a. HELLER, M.—" Entwickelt sich die *Trichinella spiralis* in der Darmlichtung ihres Wirtes ? " v (2), 370-392. [1933.]

b. HEINZE, K.—" Die Gattung *Capillaria* Zeder 1800 als Fischparasit." v (2), 393-406. [1933.]

c. STEINER, G. & BUHRER, E. M.—" The nematode *Tylenchus similis*, Cobb, as a parasite of the tea plant (*Thea sinensis*, Linn.), its sexual dimorphism, and its nemic associates in the same host." v (2), 412-420. [1933.]

d. VOGEL, H. & BRAND, T. v.—Über das Verhalten des Fettes in den einzelnen Entwicklungsstadien von *Fasciola hepatica* und seine Beziehungen zum Exkretionssystem." v (2), 425-431. [1933.]

e. AZIM, M. A.—" On *Prohemistomum vivax* (Sonsino, 1892) and its development from *Cercaria vivax* Sonsino, 1892." v (2), 432-436. [1933.]

f. SASSUCHIN, D. & TIFLOW, W.—" Endo- und Ektoparasiten des Steppenziesels (*Citellus pygmaeus* Pall.) im Süd-Osten RSFSR." v (2), 437-442. [1933.]

(a) As a result of experimental infections of rats and kittens, Heller has shed light on the developmental stages of *Trichinella spiralis* between ingestion of the larvae and parturition of the resulting females.

Excystment takes place in the host's stomach immediately, free larvae appearing in the small intestine within an hour. They at once attach themselves to the mucosa ; if prevented from doing so by inclusion in a collodion sac they fail to develop. They become sexually differentiated after 24 hours, and fertilization occurs within 48 hours. These young stages penetrate through the epithelial layer and presumably feed on the tissues of the host rather than on the intestinal contents ; they are detectable within the tissues 12 hours after ingestion. Thus the parasite cannot be removed by merely mechanical expulsion. Incidentally, the author describes a bulb-like swelling in the anterior oesophagus immediately in front of the cell-chain. B.G.P.

(b) Heinze reviews the species of the genus Capillaria which have been recorded from fish.

Fifteen species are described including a new species *C. pterophylli* from *Pterophyllum scalare* and *P. eimekei* and a list of species under hosts is added. The author considers that the genus Capillospirura is more closely related to the Trichuroidea than to the Spiruroidea and includes a description of *C. ovotrichuria* Skrj. 1924. D.O.M.

(c) Steiner and Buhrer describe the occurrence of seven species of nematodes within a small piece of root of the tea plant. Of these *Tylenchus similis* which was most abundant and of which all stages of the life cycle were present is considered to be the primary parasite.

T. similis shows a marked sexual dimorphism, the males being more slender than the females, with a different head structure, vestigial spear and reduced, almost vestigial oesophagus. The larvae are, however, indistinguishable in respect of these structures and it is only at the last moult that the male develops its dimorphic features. The writers consider the dimorphism to be an adaptation to the complete endoparasitism of the species. The other nematodes present are concluded to be secondary parasites, *Acrobeloides bütschlii* was, however, seen to be forcing itself through the cell walls. A short description is given of the morphology of *Aphelenchoides minor*, a species only once recorded previously. The other nematodes found in association with the above mentioned forms were *Cephalobus* sp., *Cephalobus oxyuroides*, *Cephalobus elongatus* and *Plectus parvus*. M.J.T.

(d) Vogel and Brand have stained various stages of *Fasciola hepatica*, from egg to adult, with Sudan III and have found that, as soon as the parasitic stage is reached, fats begin to appear in the Y-shaped excretory bladder.

The authors associate this with the anoxybiotic mode of life, the production of fats from glycogen releasing energy under such conditions. These fats continue to be excreted throughout the parasitic life of the fluke, but they are not demonstrable in the finer excretory capillaries and flame-cells. Minute droplets of fat also occur in the mature egg (not in the uterine egg), miracidium, redia and cercaria, but in these stages they have no association with the excretory system and such fat is physiologically, and perhaps chemically, quite distinct from that excreted by the parasitic stages. B.G.P.

(e) Azim has shown that *Cercaria vivax* Sonsino, 1892 is the larval stage of *Prohemistomum spinulosum* Odhner, 1913, which thus becomes *P. vivax*.

The bifid-tailed (holostome) cercaria, which is common in snails of the genus *Cleopatra*, was described by Sonsino and by Looss (1896), but neither was able to observe encystment. Azim found that it encysts in fish (*Gambusia affinis* and *Tilapia nilotica*) which may be killed by heavy infections. The metacercaria develops a black pigment which obscures all structure. Cats and dogs were experimentally infected, but the common host is the kite, *Milvus migrans aegyptius*. B.G.P.

(f) Sassuchin and Tiflow list the parasites of *Citellus pygmaeus*, a plague-carrier and agricultural pest in the South-East of Russia. [This is a translation into German of the same authors' Russian paper in Rev. Microbiol. Epidémiol. Parasitol. XI (2), 129-132 (1932.)] B.G.P.

54—Zeitschrift für Pflanzenkrankheiten- und Pflanzenschutz.

a. BLUNCK, H.—"Über Möglichkeiten zur Eindämmung der Kartoffelnematoden-Plage." XLIII (2), 68-77. [1933.]

(a) Blunck discusses the conditions under which *Heterodera schachtii* causes damage to potatoes in Germany, and the possibility of checking the spread of the parasite by restriction of potato growing in infected areas.

It is pointed out that damage occurs chiefly when a heavy rainfall occurs in May and June, particularly in areas with a light soil where a three-year rotation is not practised. Since allotments and private gardens are the most common foci of infection Blunck recommends that private organisations such as unions of gardeners, etc., should disseminate advice on crop rotation, the destruction of infected refuse and the cleaning of instruments, etc., and that seed distributors should refuse to accept seed from infected areas. State action in restricting imports from infected countries is also considered advisable. M.J.T.

55—Zentralblatt für Bakteriologie. Abteilung I. Originale.

a. VOGEL, H.—"*Himasthla muehlensi* n. sp., ein neuer menschlicher Trematode der Familie Echinostomidae." CXXVII (7/8), 385-391. [1933.]

b. SZIDAT, L.—"Weitere Beobachtungen über das Vorkommen und die Biologie von *Prosthogonimus pellucidus* v. Linst., den Erreger der Trematodenkrankheit der Legehühner, bei Enten und Gänsen in Ostpreussen." CXXVII (7/8), 392-397. [1933.]

(a) To the Echinostomidae reported from man hitherto, 5 species of *Echinostoma* and one of *Echinochasmus*, Vogel has now added *Himasthla muehlensi* n. sp. which is here described on the basis of 5 specimens recovered from a German.

The new species is differentiated from the 8 existing species, all bird parasites, in a table of measurements. It is distinguished by the presence of 32 spines on the circumoral collar, by the size of the eggs, 130 μ by 75 μ, and by the presence on the cirrus of rose-thorn-shaped spines. The infection may have been acquired through eating uncooked clams in America, where the patient had lived for 6 years. B.G.P.

(b) Szidat has found that *Prosthogonimus pellucidus*, normally considered a parasite of domestic fowls, also occurs in the oviducts of ducks and geese in East Prussia, provoking an intense inflammation which apparently gives rise to heavy losses.

The fluke develops only in the active oviduct, i.e., during the laying season when wild birds are protected; it is therefore difficult to discover how widespread the infection may be. It is perhaps significant that severe losses among partridges have occurred in years when dragon-flies, vectors of this fluke, were plentiful. B.G.P.

56—Zoologischer Anzeiger.

a. SCHUURMANS STEKHOVEN (Jr.), J. H.—"Die Nahrung von *Oncholaimus dujardinii* de Man." CI (5/6), 167-168. [1933.]

b. LAYMAN, E.—"Einige neue Tatsachen über die Ökologie der Froschtrematoden." CI (7/8), 199-201. [1933.]

c. STEINER, G. & LEHEW, R. R.—"*Hoplolaimus bradys* n. sp. (Tylenchidae, Nematodes), the cause of a disease of yam (*Dioscorea* sp.)." CI (9/10), 260-264. [1933.]

d. BYCHOWSKY, B.—"Die Amphibientrematoden aus der Umgegend von Kiew." CII (1/2), 44-58. [1933.]

e. SCHULZ, R. E.—"*Citellinema orientale* n. sp. (Trichostrongylidae, Nematodes) aus einem Erdhörnchen (*Eutamias asiaticus orientalis* Bonh.)." CII (3/4), 74-78. [1933.]

f. KREPKOGORSKAJA, T. A.—"Beitrag zur Fauna der Nematoden aus *Rhombomys opimus* Licht. aus Kasakstan." CII (3/4), 87-91. [1933.]

(a) Schuurmans Stekhoven describes certain observations which were first carried out by Dr. E. Ross, on the feeding habits of *Oncholaimus dujardinii*.

The nematodes were found in abundance among colonies of the Polyzoon *Zoobotryon pellucidum*, more particularly when the latter were kept in aquaria. The feeding worm was seen to attach itself by its tail to the body of the selected zooid, thrust its head into the mouth and down into the stomach of the animal, where, by violent tearing movements it detached and injested groups of cells. It is pointed out that the deep pharynx, the three teeth and strong muscular oesophagus are admirably adapted for this method of feeding, which, it is suggested, is probably a common one among nematodes of similar morphology. M.J.T.

(b) Layman points out that frogs (*Rana esculenta*) from different neighbouring localities show curious anomalies in the relative incidence of different trematode species, anomalies probably explained by the distribution of intermediate hosts. Thus the absence of digenetic trematodes in frogs from one lake was associated with a low calcium content of the water and hence with an absence of molluscs. Four species of intestinal flukes were found to be confined to separate regions of the alimentary canal. B.G.P.

(c) Steiner and LeHew give a detailed account of the morphology of *Hoplolaimus bradys* n. sp., found in the tuber of a yam exported from Jamaica.

Two other species of the genus, which is closely related to *Tylenchus*, are known. *H. bradys* differs from these in the structure of the lip region, which is rounded, faintly six-lobed and distinctly annulated, with anterior concave indentations in the bulbs of the spear, and also in the shape of the female tail which is obtusely conical. A key to the three species is given. M.J.T.

(d) Bychowsky has studied in great detail the distribution of 20 species of trematodes among 10 species of amphibia in the Kiev region.

The results are arranged in 15 tables under hosts, summarized and separately by districts, and under parasites, summarized and by districts. The distribution by districts reveals curious anomalies that are lost in the summaries. B.G.P.

(e) Schulz describes and illustrates a new trichostrongyle, *Citellinema orientale* n. sp. from the small intestine of *Eutamias asiaticus orientalis* in the far east of Russia. He differentiates it from the four pre-existing species in a table of measurements. *Citellinema bifurcatum*, *C. sleggsi* and *C. monacis* are very closely related and may prove to be identical. B.G.P.

(f) Krepkogorskaja has found the following parasites in *Rhombomys opimus* from Kasakstan: *Aspiculuris asiatica*, *Dentostomella translucida*, *Physaloptera massino* for which a table of measurements is given, *Trichocephalus* sp. (only one undamaged female available), and *Litomosa wite* n. sp. This new filarial species is described and illustrated from female specimens, and the generic diagnosis of *Litomosa* Yorke & Maplestone, 1926 is slightly altered so as to accommodate it. B.G.P.